

PATENT APPLICATION

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TITLE OF THE INVENTION

"REMOTELY CONTROLLED FOOTWEAR AND FOOTWEAR KIT"

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CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation of co-pending U.S. Patent Application Serial No.
10 10/666,135, filed September 22, 2003, which is incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT

Not applicable

REFERENCE TO A "MICROFICHE APPENDIX"

15 Not applicable

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to footwear, such as sneakers and, more particularly,
to a footwear that allows spinning discs or the like to be rotated clockwise or
20 counterclockwise on the lateral side of a shoe member.

2. General Background

Currently, illuminating fashion footwear, such as sneakers, sandals, platform
shoes, etc., have embedded therein lights that strobe or blink on and off as the wearer
walks. The illuminated lights, when on, attract the attention of nearby observers.
25 However, the illumination of the lights is generally activated when the wearer walks and
are not remotely controlled.

Several patents have been patented which are aimed at remotely controlled skates.

Japanese Patent No. 6-134076 discloses a remotely controlled and electronically
powered roller skate.

30 U.S. Patent No. 6,059,062 issued to EMPOWER Corporation of Cambridge,
Massachusetts, on the application of D.H. Staelin, et al., discloses a powered roller skate

including a computerized controller to control the battery driven electric motor coupled to the drive wheels through a gear system.

U.S. Patent No. 6,428,050 issued to A.K. Brandley, et al., discloses a motorized skate employing a hand-held remote control to control the operation of the electric motors which power the drive wheels.

U.S. Patent No. 4,355,482 issued to Mattel, Inc., of Hawthorne, California, on the application of J. Sapkus, et al., discloses a roller skating doll having powered roller skates and, a controller (including remote transmitter and receiver within the body of doll) to remotely control the operation of the electric motors and therefore, the drive wheels through a gear system.

As will be seen more fully below, the present invention is substantially different in structure, methodology and approach from that of powered footwear.

The term lateral herein references the lateral side a foot and, thus, that side of a shoe when worn supports the lateral side of the foot.

SUMMARY OF THE PRESENT INVENTION

The preferred embodiment of footwear kit of the present invention solves the aforementioned problems in a straight forward and simple manner.

Broadly, the present invention contemplates remotely control footwear comprising: right and left shoe members each having a sole, each sole comprising: front and rear rotating discs coupled along a lateral side of said sole, said front and rear rotating discs provide an appearance of rotating wheels when rotating.

The present invention further contemplates footwear having right and left shoe members that provide an illusion of a vehicle and the front and rear rotating discs provide the appearance of rotating wheels.

The present invention further contemplates a remote controlled motorized rotating assembly housed in the sole and coupled to the front and rear rotating discs. A remote controller, is also provided for controlling a direction of rotation of and braking of the front and rear rotating discs.

Moreover, the present invention contemplates, a footwear kit that includes footwear (right and left shoe members) having embedded therein a remote controlled motorized rotating assembly, a remote controller, a plurality of discs and optional

accessories such as carrying case and pump.

In view of the above, an object of the present invention is to provide footwear that includes a sole provided with an inflatable chamber and a pumping port for filling said inflatable chamber with air via a pump.

5 Another object of the present invention is to provide footwear that provides rotatable discs giving the illusion of a rotating wheel only along the lateral sides of right and left shoe members.

In view of the above, a feature of the present invention is to provide footwear that is comfortable.

10 Another feature of the present invention is to provide a footwear that is attractive and which can change the color or decorative design of discs to change the appearance of the footwear.

A further feature of the present invention is to provide footwear that is relatively simple structurally.

15 A still further feature of the present invention is to provide a footwear kit that is convenient to use.

The above and other objects and features of the present invention will become apparent from the drawings, the description given herein, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWING

20 For a further understanding of the nature and objects of the present invention, reference should be had to the following description taken in conjunction with the accompanying drawings in which like parts are given like reference numerals and, wherein:

25 **FIGURE 1** illustrates an elevational view of the lateral side of a remote-controlled footwear shoe member of the footwear kit in accordance preferred embodiment of the present invention;

FIGURE 1A illustrates the remote controller of the footwear kit in accordance with the present invention;

30 **FIGURE IB** illustrates the optional pump of the footwear kit in accordance with the present invention;

FIGURE IC illustrates the optional carry case of the footwear kit in accordance with the present invention;

FIGURE 2 illustrates an elevational view of the lateral side of a remote-controlled footwear shoe member of the present invention with the front and rear rotatable discs removed;

FIGURE 3 illustrates an elevational view of a second embodiment of a lateral side of a remote-controlled footwear shoe member with the front and rear rotatable discs removed;

FIGURE 4 illustrates a top view of the rear rotatable disc of the embodiment of **FIGURE 2**;

FIGURE 5 illustrates a top view of the rear rotatable disc of the embodiment of **FIGURE 2**; and,

FIGURE 6 illustrates a general block diagram of the remote controlled motorized rotating assembly.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and in particular **FIGURES 1, 1A, 1B, and 1C**, the components of the footwear kit of the present invention are shown. The footwear kit includes footwear 10 (only one shoe member shown) having embedded therein a remote controlled motorized rotating assembly 30 (**FIGURE 6**), remote controller 40, a plurality of discs 50a, 50b and 50c and optional accessories such as carrying case 60 and pump 70.

In the exemplary embodiment, the footwear 10 is sneakers (whether high top or low top), as best seen in the elevational views of **FIGURES 1, 2 and 3**. The type of footwear 10 can be a variety of styles and types. Sneakers of the exemplary embodiment includes a rubber, rubber-like or synthetic sole 12, wherein rubber-like is defined as any material that is resilient or semi-resilient. Other types of shoes may include heels, a platform sole and/or a shoe sole made of leather or other types of synthetic material.

The footwear 10 of the present invention includes a shoe sole 12 that is constructed to house therein the remote controlled motorized rotating assembly 30 (**FIGURE 6**) and forms front and rear lateral openings 17a and 17b, as best seen in **FIGURE 2**. In the exemplary embodiment, the openings 17a and 17b are circular. Description of each footwear style is prohibitive. Thus, the described exemplary embodiment set forth in more detail below is not intended to be limited to sneakers.

The footwear 10 further includes an upper foot enclosure 14 and enclosure fastening means 16. The upper foot enclosure 14 includes a foot support member 15a dividing the upper foot enclosure 14 from the shoe sole 12. With reference to **FIGURE 2**, the upper foot enclosure 14 includes a lateral heel enclosing panel 15b integrated with the foot support member 15a to fully enclose the heel and a lateral toe enclosing panel

15c. The lateral toe enclosing panel 15c is also integrated with the foot support member 15a to fully enclose the toe area.

In the exemplary embodiment, the upper foot enclosure 14 may be made of canvas, leather, or synthetic materials. The enclosure fastening means 16 comprises shoe
5 laces functioning in a conventional manner. Nevertheless, other fastening means 16' can be substituted such as hook and loop straps, as best seen in FIGURE 3, VELCRO® straps, zippers, or any combination thereof. Since some of the upper foot enclosures 14 are made of elastic material or fibers, the upper foot enclosure 14 may be capable of stretching when a foot is inserted. Therefore, the enclosure fastening means 16 or 16'
10 may be omitted.

Regarding the shoe sole 12, the shoe sole 12 forms a hollow compartment below the foot support member 15a for housing therein the remote controlled motorized rotating assembly 30 (FIGURE 6). The compartment, preferably, being isolated from the upper foot enclosure 14. The front and rear lateral openings 17a and 17b may be dimensioned to
15 expose part of the lateral heel enclosing panel 15b, the foot support member 15a and the lateral toe enclosing panel 15c when the discs 50a and 50b are removed.

As can be appreciated, a shoe member has lateral medial sides sole and the. While the present invention describes the sole and the rotating discs along the lateral side, duplication of the components for rotating discs along the medial side can be provided.
20 However, the rotating discs will be best observed from the lateral side of a foot.

Furthermore, the combination of the illustrations and arrangement of the front and rear rotating discs 50a and 50b, the orientation of related openings 17a and 17b in the shoe sole 12, sole construction and the upper foot enclosure 14 is arranged to provide footwear 10 that resembles a moving vehicle or hot rod. The rotating discs 50a and 50b
25 gives the appearance or illusion of a rotating wheel engaging the ground. However, the rotating disc 50a and 50b do not function to move the shoes and do not engage the ground.

To enhance the illusion of rotating wheels, the discs 50a and 50b have illustrated thereon a design of a hubcap or other spoke arrangement. Nevertheless, other disc designs
30 may be substituted. For example, the discs 50a, 50b and 50c may be color and design coordinated to form a set. The kit may include multiple sets of differently colored and/or designed discs that are interchangeable.

In the embodiment of FIGURE 1, the front rotating disc 50a is smaller than the rear rotating disc 50b, as best seen in FIGURES 4 and 5. Alternately, the front rotating disc 50a and the rear rotating disc 50b could be approximately the same size, as best seen in FIGURE 3.

5 As best seen in FIGURES 2 and 3, the front gear and axle assembly 36a is positioned below the foot support member 15a and is aligned substantially along a center of the opening 17a. Likewise, the rear gear and axle assembly 36b is positioned below the foot support member 15a and is aligned substantially along a center of the opening 17b.

10 The discs 50a and 50b snap onto mounts on the end axles. The discs 50a and 50b merely turn in the openings 17a and 17b on via front and rear gear and axle assemblies 36a and 36b.

 The remote controlled motorized rotating assembly 30 (FIGURE 6) includes a motor 32 powered by battery 34, front and rear gear and axles assemblies 36a and 36b
15 (gear train). The motor 32 is activated direction control and braking signals received by infrared (IR) receiver 38 from remote controller 40.

 Remote controller 40 is a compact hand-held unit adapted to be carried in a shirt or pants pocket or carry case 60. The remote controller 40 includes a housing 41 with a plurality of control keys 42a, 42b, and 42c on a front panel. In the preferred embodiment,
20 the remote controller 40 communicates via infrared communications through IR transmitter 44 to infrared (IR) receiver 38. The plurality of keys includes an forward motion key 42a, rearward motion key 42b and braking key 42c.

 The forward motion key 42a and rearward motion key 42b activate the direction control module 46 to rotate the discs 50a, 50b and 50c in clockwise or counterclockwise
25 directions on command. The braking key 42c activates the brake control module 47 to stop the rotation of the discs. The remote controller 40 includes a battery 48 which is stored in the housing 41 and which is adapted to be replaced.

 Carrying case 60 comprises a brief case that is dimensioned to support therein the footwear 10 (right and left shoe members), the remote controller 40, pump 70 and a
30 plurality of discs 50a, 50b and 50c. The carrying case 60 in general includes top and

bottom case members(only the top member shown 62) that are hingedly attached together and handle 64. The top and bottom case members are secured together via locking members 65.

5 The top case member 62 includes window 63 for rotating therein disc 50c connected to a gear train (gear and axle assembly) which is powered by a battery. Reference to the block diagram in FIGURE 6 includes the general circuitry. The battery powered gear train is remotely controlled and activated by remote controller 40. The remote controller 40 controls discs 50a, 50b and 50c with the same control signals.

10 Remote controller 40 can be designed to control discs 50, 50b and 50c independently or simultaneously or independently (e.g., one set of discs turn in one direction while the other sets remain stationary or turn in the other direction).

In the exemplary embodiment, the shoe sole 12 has an underside-arch 13 having a port 15 formed therein. The port 75 is in communication with an inflatable chamber 72 within the compartment of the shoe sole 12. The pump 70 when coupled to the port 75 serves to inflate chamber 72.

20 Because many varying and differing embodiments may be made within the scope of the inventive concept herein taught and because many modifications may be made in the embodiment herein detailed in accordance with the descriptive requirement of the law, it is to be understood that the details herein are to be interpreted as illustrative and not in a limiting sense.